Combustion Research Facility

Fact Sheet

The Combustion Research Facility (CRF) is the Department of Energy's premier site for broad-based research in combustion science and technology. For nearly 20 years, the CRF has been a DOE "user facility" where scientists from industry and academia collaborate with CRF researchers on problems of mutual interest. This basic and applied research focuses on improved energy efficiency and reduced emissions from the nation's energy conversion and utilization systems. A strong emphasis on development and use of advanced optical diagnostic methods characterizes CRF experimental approaches.

Origins of the CRF

The CRF was established at Sandia National Laboratories in Livermore, Calif., in response to the energy crisis of the mid-1970s. DOE-supported combustion research programs began at Sandia in 1975, and the CRF office and laboratory complex opened in 1981. In response to user needs and newly emerging experimental technologies, a second phase opened in 1999, providing state-of-the-art experimental and computational capabilities.

The entire 74,000-square-foot CRF facility houses offices for staff members and users, meeting space, and 37 individual laboratories. The laboratory building is specially equipped for laser-based diagnostics, combustible and toxic gas handling, computer-controlled safety, and technical support capabilities required for cutting-edge combustion research activities.

Distinguishing Features and Strengths

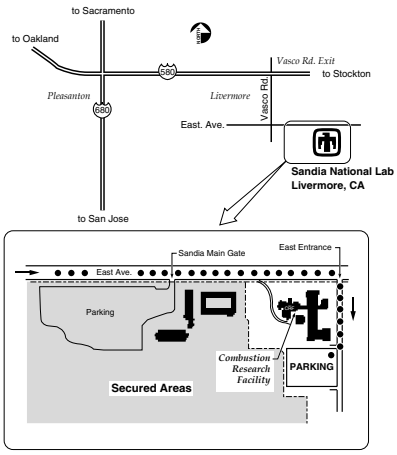
The CRF is distinguished by its confluence of multidisciplinary researchers conducting both basic and applied research using state-of-the-art equipment. There is a strong emphasis on using multiple laser-based optical diagnostics for simultaneous measurements of key chemical and fluid-mechanical parameters in laboratory experiments and field measurements. Many of these diagnostics are either unique or not readily available to researchers at other institutions, especially not all together in one location. The breadth of the CRF's diagnostic capabilities are augmented by a broad modeling and simulation capability in chemical science and fluid dynamics of reacting flows.

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under contract DE-AC04-94AL85000.

Sandia National Laboratories

CRF capabilities address evolving national challenges:

- *Clean, efficient vehicles*
- *Clean, diesel engines*
- *Efficient energy utilization*
- *Efficient, clean, power generation*
- *Pollution prevention*
- *Alternative fuel utilization*
- *Advanced chemical analysis*
- *Industrial process control*
- *Global climate change*
- *Chemical manufacturing*
- *Clean petroleum refining*
- *Advanced materials processing*
- *Environmental cleanup*



Visiting Researcher Program

Each year, the CRF supports some 100 visiting scientists and engineers who come from universities and industries throughout the country and around the world. These visiting researchers, who may work at the CRF for a period of weeks to years, have access to the unique optical diagnostics capabilities as well as the CRF's expert staff, which includes scientific and engineering experimentalists and theorists as well as supporting technologists and administrative staff. One of the primary benefits of the Visiting Researcher Program is "cross fertilization." Not only do the visiting scientists obtain support and insight from CRF staff members, they also bring with them developments and unique knowledge from their home institutions that stimulate progress and bring new approaches to CRF projects.

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